UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SUPERFUND SITE STRATEGY RECOMMENDATION - REGION 06

Site Name: Jackpile-Paguate Uranium Mine **CERCLIS ID#:** NMN000607033

Alias Site Name:

659294

Address: SR 279, Near Paguate, Laguna Pueblo

City/County or Parish/State/Zip: Paguate/Cibola/ New Mexico

Report Type: Expanded Site Inspection **Date:** December 2011 **Author:** Weston

RECOMMENDATION:

☐ 1. No Further Remedial Action Planned Under Superfund (NFRAP)

☒ 2. Further Investigation Needed Under Superfund
☐ PA ☒ HRS Priority: ☒ High
☐ SI ☐ RI/FS ☐ Low
☐ ESI ☐ RA
☐ Other:
To be performed by: Weston

☐ 3. Action Deferred to: ☐ RCRA ☐ NRC

☐ 4. Site Being Addressed Under the State Voluntary Cleanup Program (VCP): ☐ Yes ☐ No

NOTIFY AUTHORITY:

☐ Removal	☐ RCRA	☐ TSCA	☐ CAA	☐ SMCRA
☐ Remedial	☐ State/Tribe	☐ NPDES	☐ NRC	☐ Resource Trustee:
☐ CERCLA Enforcement	☐ Federal Facility	☐ UIC	☐ SPCC	☐ Other:

SEND SSSR COPIES TO: ☐ 6SF-AC ☐ 6WQ-SP ☐ ATSDR ☐ State Agency ☒ Tribal Agency

DISCUSSION:

An Expanded Site Inspection with a Conceptual Site Model was conducted by Weston Solutions, contractor to EPA, at the Jackpile-Paguate Uranium Mine site located approximately 40 miles west of Albuquerque, New Mexico, near the village of Paguate. The site is located in an area of canyons and arroyos to the east of the village of Paguate. The property on which the former uranium mine is located is approximately 7,868 acres in size. Approximately 2, 656 acres of this property was disturbed and the area consisted of three open pits that were between 200 and 300 feet deep, 32 waste dumps and 33 proto-ore stockpiles.

The mine was operated by Anaconda Minerals Company. Mining operations were conducted from 1953 through 1982. The mine was closed due to depressed uranium mining conditions. During the 29 years of mining, approximately 400 million tons of rock were moved within the mine area and approximately 25 million tons of uranium ore were transported via the Santa Fe Railroad from the mine to Anaconda's Bluewater Mill, approximately 40 miles west of the mine. The primary contaminants that are present in on-site sources include uranium (U-234, U-235, and U-238), arsenic, barium, chromium, cobalt, copper, lead, manganese, vanadium, selenium and zinc. Concentrations of U-238 in the surface water immediately downstream of the mine are as high as 448 ppb, well above the 2.6 ppb benchmark.

The Pueblo of Laguna, BLM, BIA and Anaconda/ARCO entered into an agreement for site remediation in 1986. To date, reclamation has been primarily the covering of mine waste and contouring. In June 1995, the Jackpile Reclamation Project was officially completed. In September 2007, a Record of Decision (ROD) Compliance Assessment was performed to

determine if the post-reclamation had met the requirements of the Environmental Impact Statement and ROD. This report identified several non-compliant issues still needed to be addresses. Despite the reclamation of the surficial mine areas, releases from the mine are still occurring. The Pueblo of Laguna has requested EPA to consider the mine for the NPL.

A Preliminary Assessment (PA) was conducted at the site in April 2010, to identify sources, and evaluate the groundwater, surface water and air pathways. The uranium mine was identified as the sole source on-site. Previous releases to groundwater and surface water have been documented. Previous investigations of groundwater wells have documented fluoride, lead, arsenic, gross alpha, uranium and Radium 226 above EPA MCLs.

A Site Inspection (SI) was conducted in March 2010. During the SI, potential sources including open pits, waste dumps and previous protore stockpile areas were documented. Uranium isotopes and total uranium exceeded three times background concentrations in eight samples collected within the Rio Moquine, Rio Paguate and Paguate Reservoir. Manganese exceeded three times background concentration in four samples collected within the Rio Paguate. Total uranium exceeded the EPA Drinking Water MCLs in five samples collected within the Rio Paguate. The Rio Moquino and Rio Paguate bisect the mine and are in direct contact with the source. Based on analytical results, a release to the surface water pathway has been documented.

An Expanded Site Inspection (ESI) was conducted in April 2011, to further investigate the surface water and groundwater pathways, collect sediment samples, gather groundwater well data and fill any data gaps. A Conceptual Site Model (CSM) was also developed to examine the existing data in order to theorize what hydro-chemical processes may be occuring and to better understand the hydrologic system at the site. Based on the results from the ESI sampling event, uranium was detected in site sources at concentrations significantly above background levels; isotopic uranium, isotopic thorium, gross alpha and beta radiation, Radium 226 and 228, beryllium, cadmium, chromium, cobalt, lead, nickel, selenium, silver and zinc were all present in ground water at concentrations significantly above background levels; and a release of isotopic uranium, isotopic thorium, gross alpha and beta, Radium 226 and 228, antimony, arsenic, beryllium, cadmium, cobalt, lead, nickel and silver were documented in the surface water pathway. Sediment sampling revealed radionuclides were present a levels signficantly higher than background at 7 locations, antimony at 2 locations and cadmium at 1 location. Based on the documented releases to the ground water and surface water pathways it is recommended that a Hazard Ranking System package be prepared for this site to determine if the site is a candidate for proposal to the National Priorities List (NPL).

APPROVALS:

Report Reviewed by:	LaDonna Turner (Site Assessment Manager)	**Signature:**	LaDonna Turner	**Date:**	03/08/12
Disposition Approved by:	John Meyer (Section Chief 6SF-TR)	**Signature:**	John Meyer	**Date:**	3/9/12